

Transforming Concepts & Technologies

... For Competitive Advantage

Office of Force Transformation

- *Why Is the Concept of Network-Centric Warfare Important?*
- *How Far Will the U.S. Go Down This Road?*
- *What Will Be the Effect of Network-Centric Strategies and Acquisition Requirements on Industry in the Coming Years?*
- *What Will Be the Implications for NATO Allies?*

Arthur K. Cebrowski, Director, Force Transformation

RIIA Conference on Transforming Defense in the 21st Century

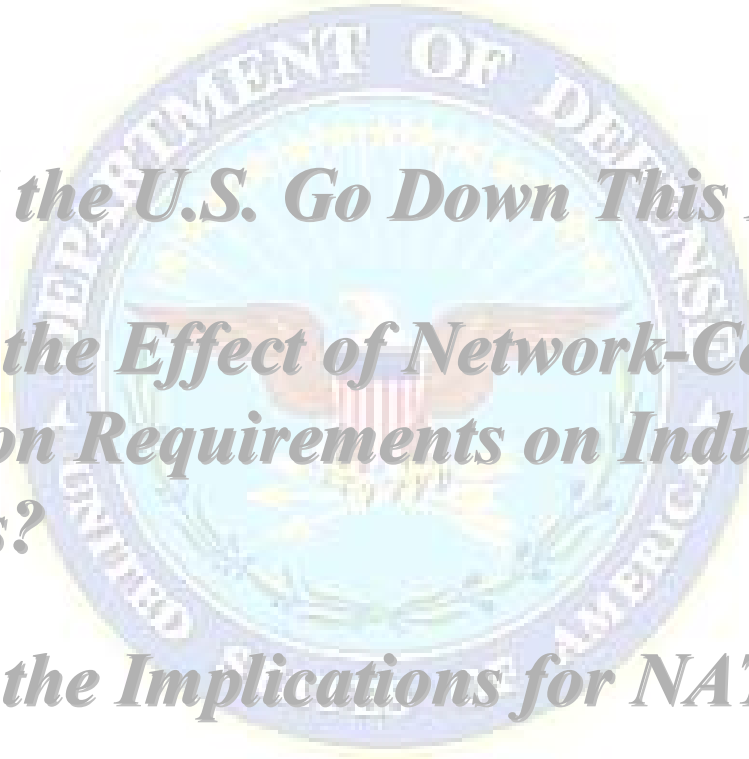
10 March 2003

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Network-Centric Warfare



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Based on human behavior

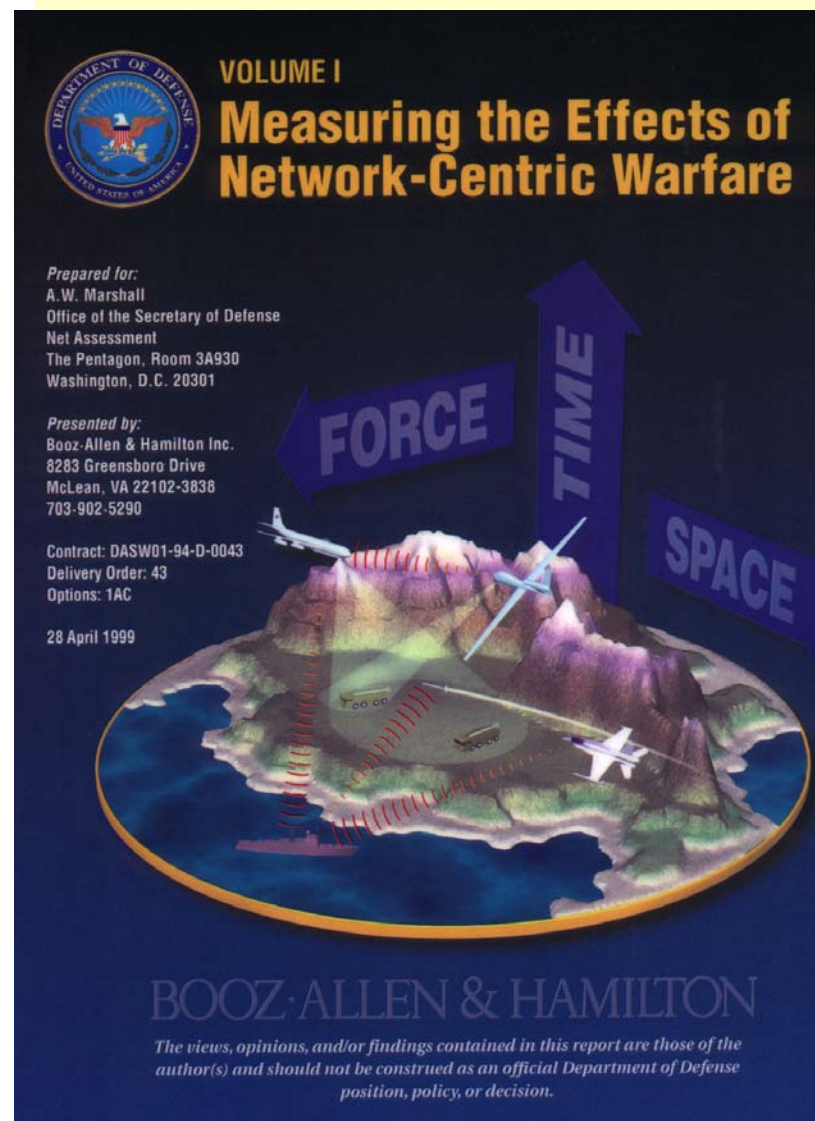
Translates an **information advantage** into a **competitive advantage**.

Derives power from **robust networking** of geographically dispersed forces.

Characterized by:

Shared battlespace awareness,
Shared knowledge of commanders intent,
Self-synchronization, speed of command and rapid lock-out.

*If you're not interoperable, you're
not on the net
not contributing
not benefiting
Not part of the information age!*





Competitive Advantage

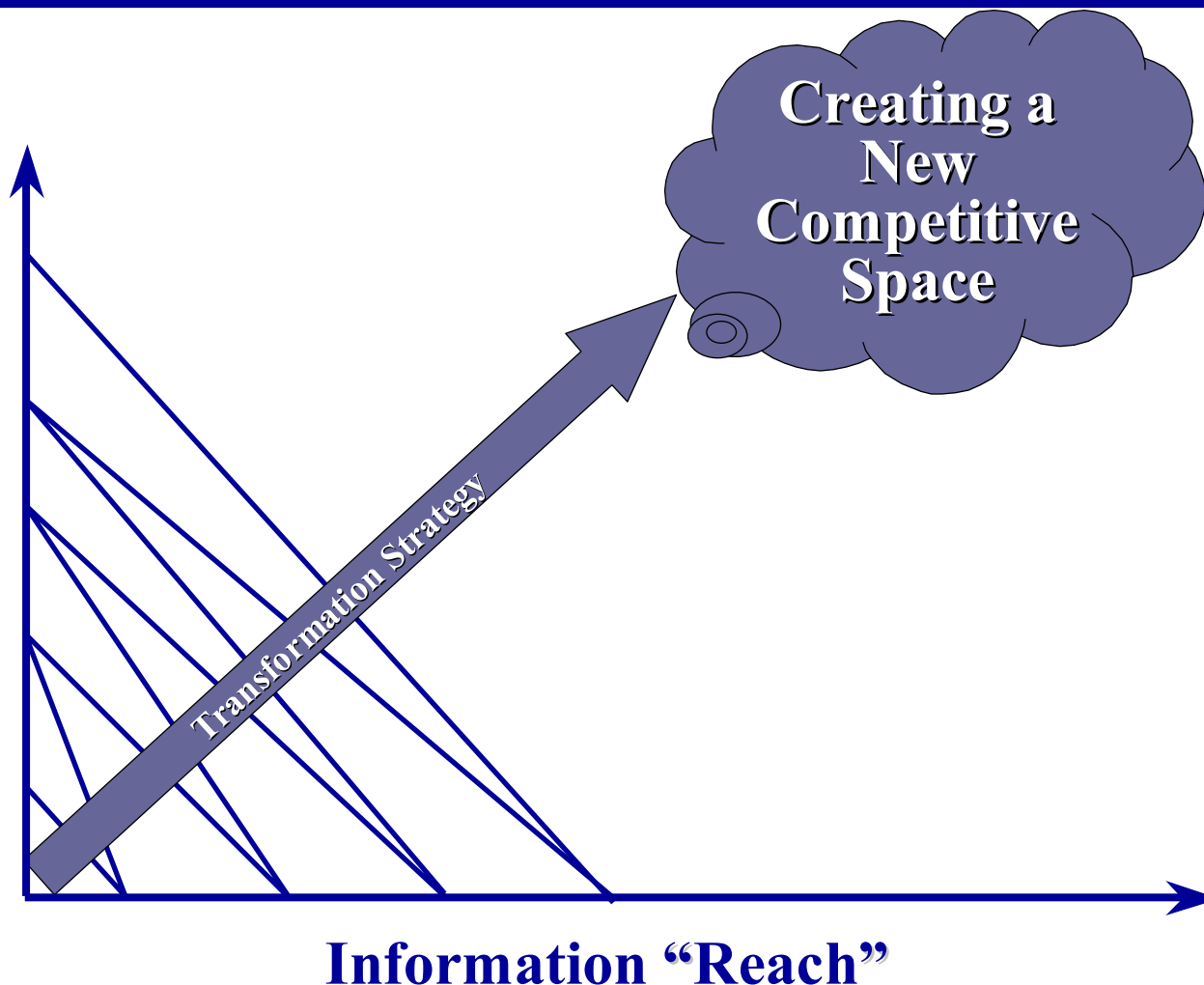
... New sources of power



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Information “Richness”

- Content
- Accuracy
- Timeliness
- Relevance



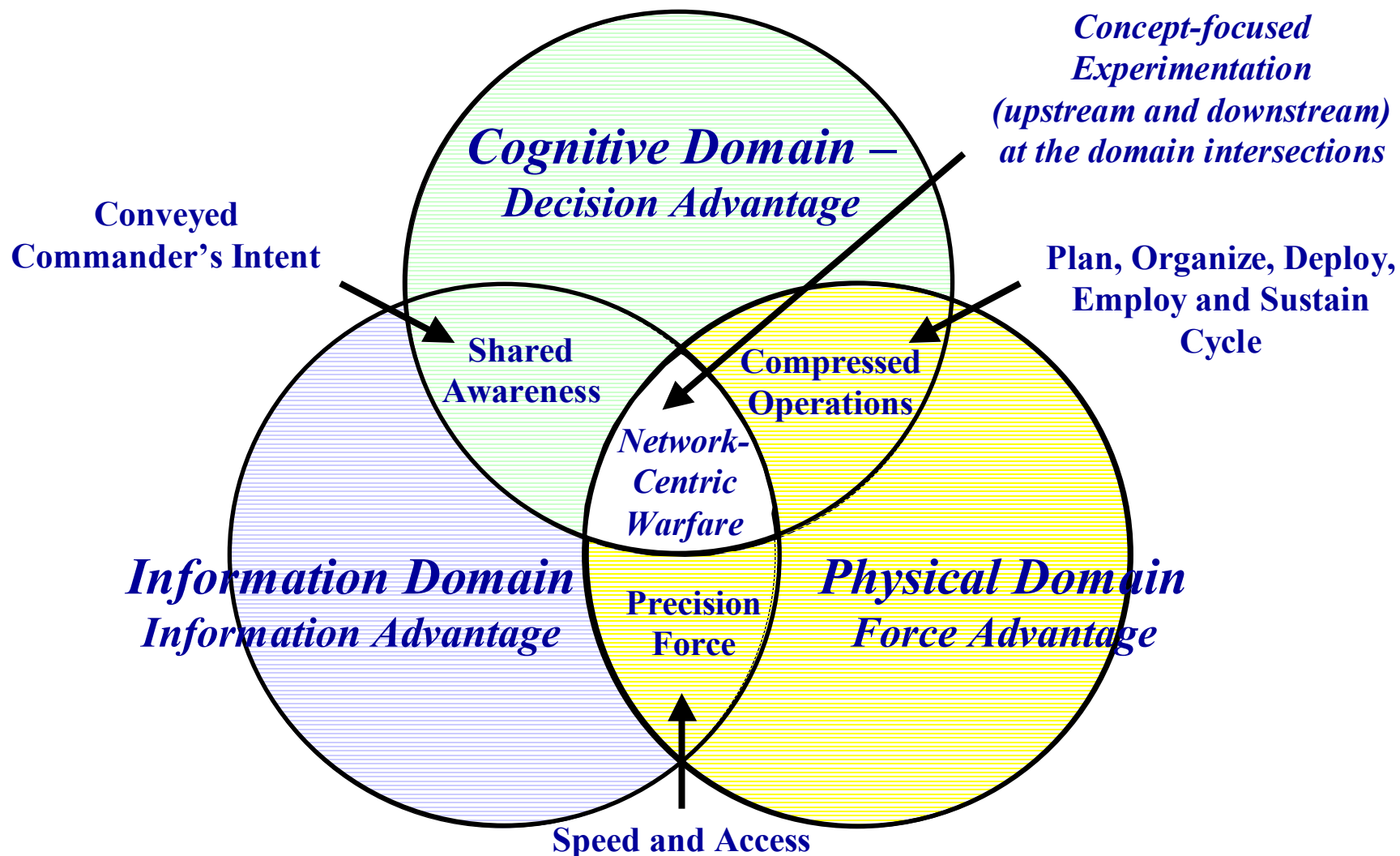


Information-Age Warfare

...Domains of conflict



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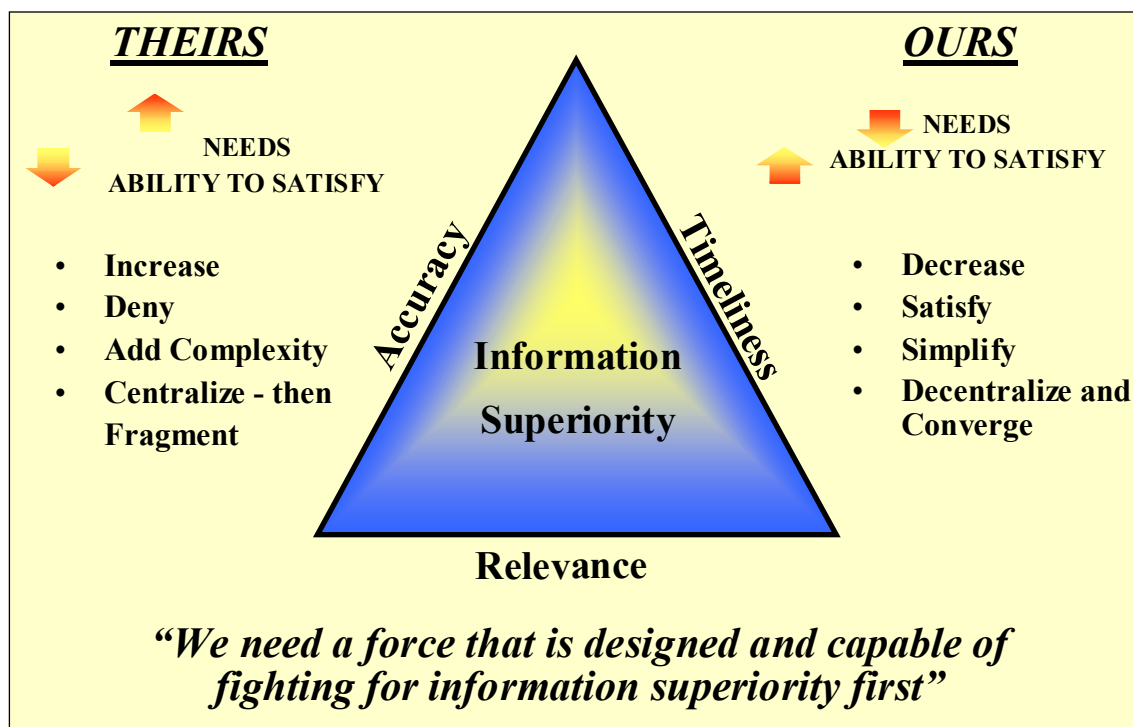
Competitive Advantage

...New sources of power



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Information Advantage – Create *new source of power* with order of magnitude improvements in information sharing (Common Relevant Operational Picture)





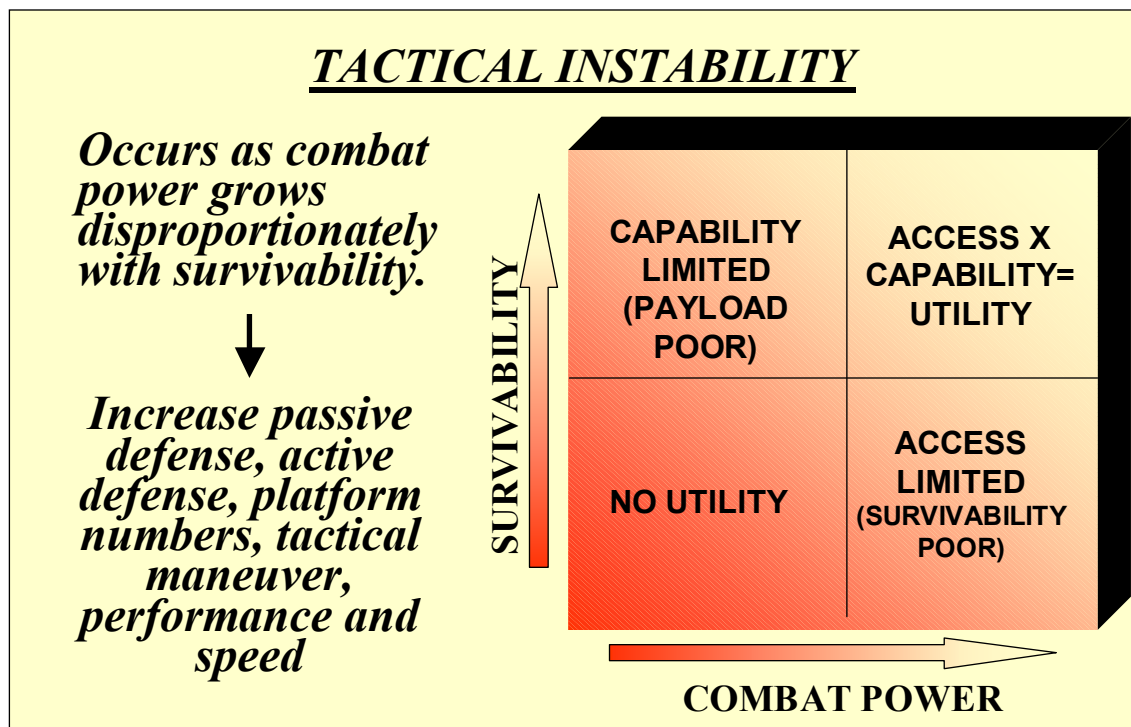
Competitive Advantage

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Physical Advantage – Gaining Advantage in force, space and time (physical expression of the impact of the information-age)





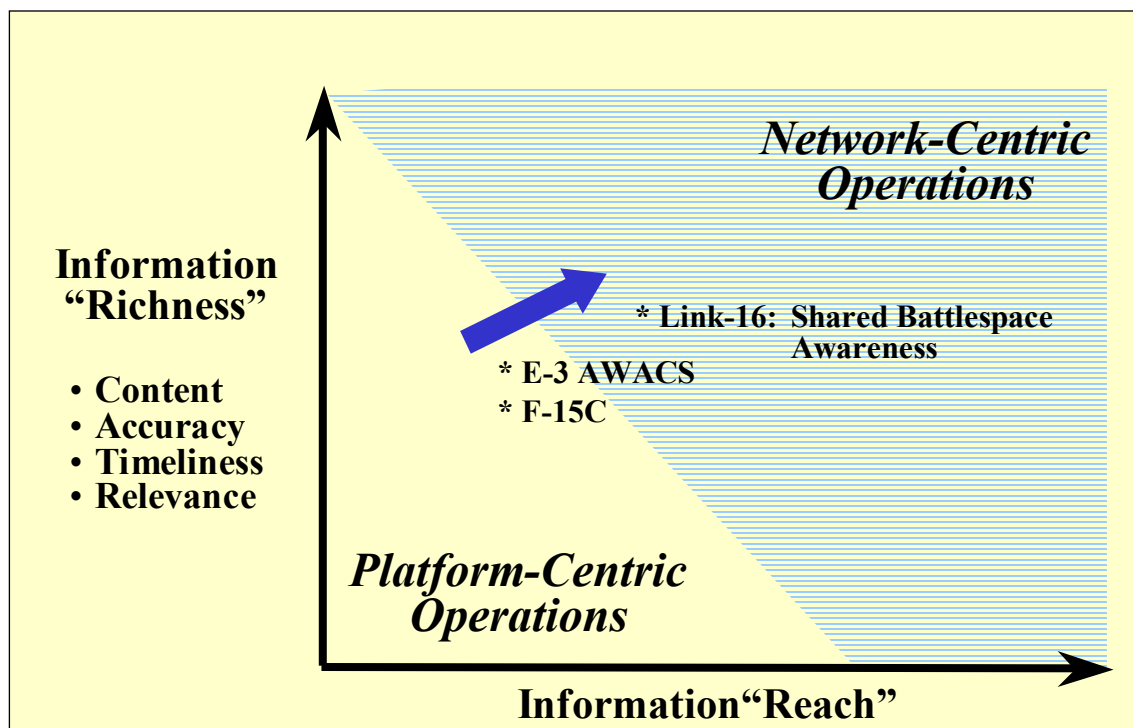
Competitive Advantage

...New sources of power



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Decision (Cognitive) Advantage – Self-synchronization, collaboration, coordination, precision of desired effects, “lock-out” to deny adversary the opportunity to compete, speeding up the “kill chain” to strike time-critical targets, enabling new TTP



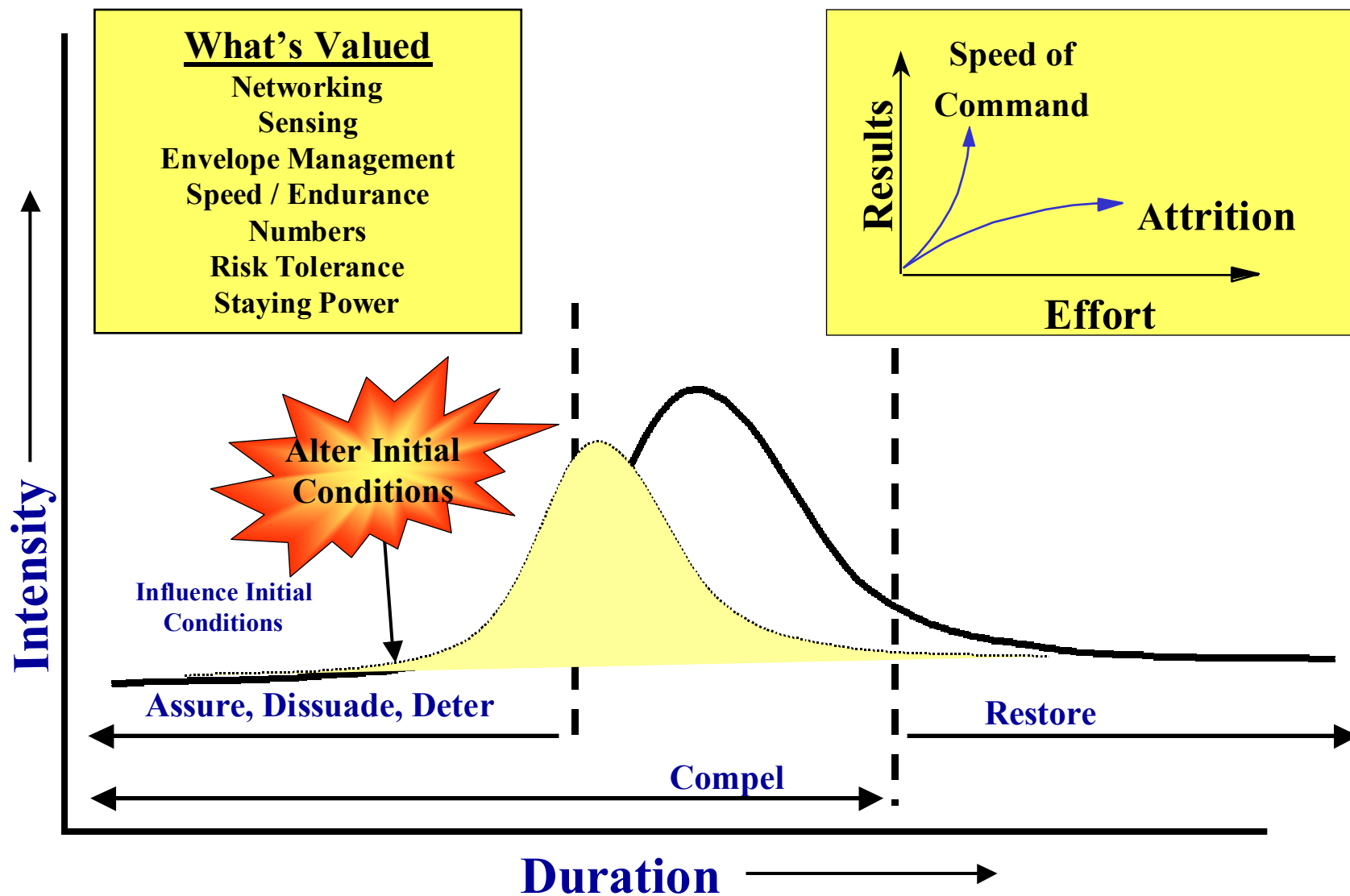


Transforming Defense

...deter forward...or defeat with modest reinforcement



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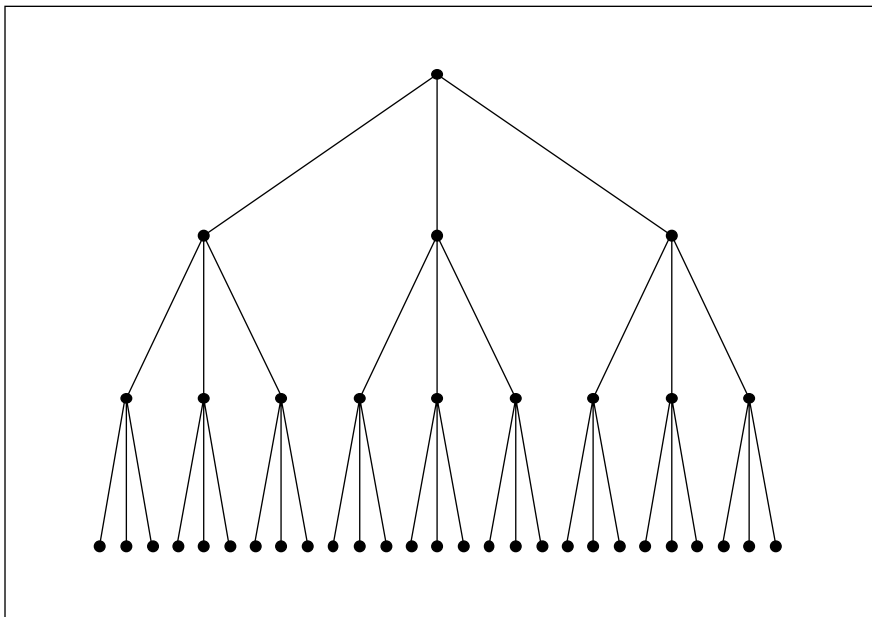




Chains versus Networks



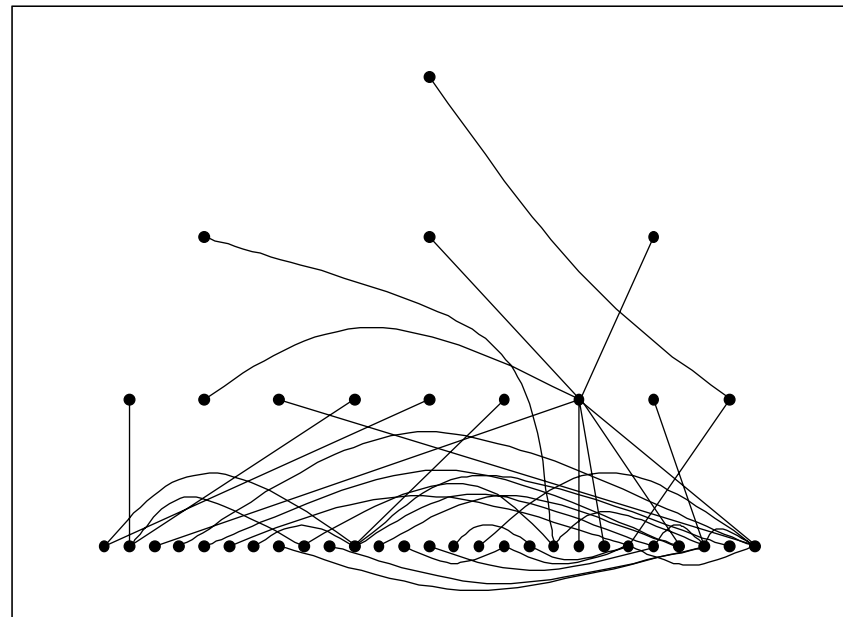
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Chain

Too brittle, simple pattern, simple control, scaled

“business end” most poorly connected, hard to reconfigure or change flow



Network

Very robust, complex pattern, complex control, scale free

“business end” best connected, natural to reconfigure or change flow



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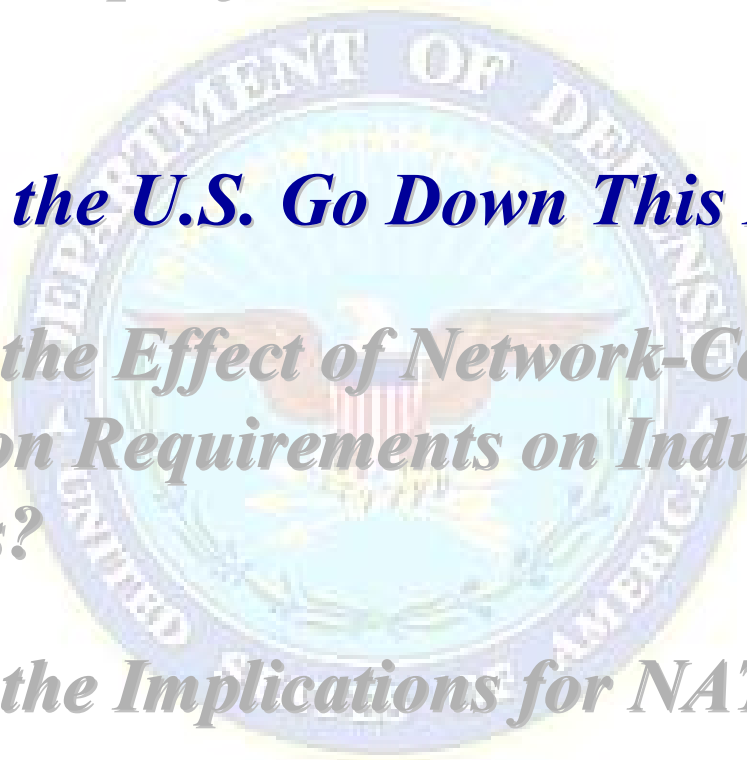
*Networked Forces
Out Perform
Forces
That Are Not*

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Transforming Defense

... General Observations



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The Emerging American Military:

- *More expeditionary (including lighter, more lethal)*
- *More networked (more interoperability at the JTF level)*
- *Designed to leverage the exterior positions
(precision from distance as sensors move in)*
- *Leverages increasingly persistent ISR*
- *Tighter sensor-shooter timelines (sensing, C2, fly-out)*
- *Values Information Superiority (information operations)*
- *Expanded unmanned capabilities
(UAV, UCAV, UUV, robotics)*



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... What's needed



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A Military Force which:

- *Is more preventative and less punitive*
- *Can determine unambiguous warnings sooner*
- *Is ISR-intensive, especially for counter-WMD*
- *Is more SOF-like*
- *Develops extensive local knowledge*
- *Can down shift to match threat*
- *Is less reliant on National Guard and Reserves for foreign wars*



Transforming Defense

...To the Information-Age



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Integrated systems

→ *Networking components*

Precision weapons

→ *Precision Effects*

Weapons reach

→ *Sensor reach*

Dispersed Offense

→ *Networked Force*

High volume strike force → *Full service maneuver force*

Securing the sanctuary → *Assuring Access*



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... Elements of strategy



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Transform from Industrial Age to the Information Age

Implement Network Centric Operations

Ensure sustained competitive advantage

Assure Allies

Dissuade competitive entry

Underwrite deterrence

Implement countervailing strategies

Broaden the capabilities base

Operational, Technical, Industrial

Create new competitive areas

Revalue competitive attributes for the information age

Decrease capabilities cycle time

Leverage U.S. advantages and opportunities

Manage the devolution of "sunset" capabilities and processes

Achieve Speed and Agility vice Optimization

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... *Decision logic*



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- Is the system interoperable?
- Can it be readily made a networked participant?
- Does it broaden the capabilities?
- Is the system operating at decreasing returns on investment?
- Are new technologies available at lower investment, both for acquisition and life cycle costs?
- Is it less expensive to effectively counter the system than it is to sustain it?

Does it allow us to do something we can not currently do?



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... *Decision logic*



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- Does it re-establish a leadership position and lock out competition?
- Does it dramatically increase the speed of deployment, employment and sustainment?
- Does it support a concept that is in devolution?
- Does it leverage U.S. asymmetric advantages?
- Does the acquisition strategy dramatically reduce capabilities cycle times?

Will it profoundly alter the competition more than legacy forces



Transforming Defense

...The new American Way of War



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The New Rules

- Fight first for information superiority
- Speed of command
- Access to information - shared awareness
- Dispersed forces - noncontiguous operations
- Demassification
- Elimination of process lines
(e.g. ops, intel, logistics or
organize, deploy, employ, sustain)
- Elimination of structural lines
(e.g. Joint ops at the small unit level)
- Dynamic self-synchronization
- Alter initial conditions
- Develop high rates of change
- Compression of levels of war

Network Centric Warfare

High Rates Of Change
Closely Coupled Events
Lock In / Out
Speed Of Command
Self Synchronization

What's Valued

Networking
Sensing
Envelope Management
Speed / Endurance
Numbers
Risk Tolerance
Staying Power



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...characteristics of the future joint force



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This is the age of the small, the fast and the many

Small: Power and size are uncoupled

Fast: A shorter response with a faster rise time more precisely placed in time and space

Many: The power of the collective at lower cost over a larger area

Rebalance for the information age

“Demassification” through increased information fractions

Simplification through adaptive relocation of complexity & the human

Networked components vice integrated systems

Operations based on assured access, information superiority, control of initial conditions and rates of change

A priori access to the domains of conflict

Secure a superior information position and convert it to a competitive advantage

Leverage the path dependency of conflict

Corporate change based on co-evolution and continuous adaptive acquisition



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... Defense management



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Broaden Capabilities Base

Technical

Industrial

Operational

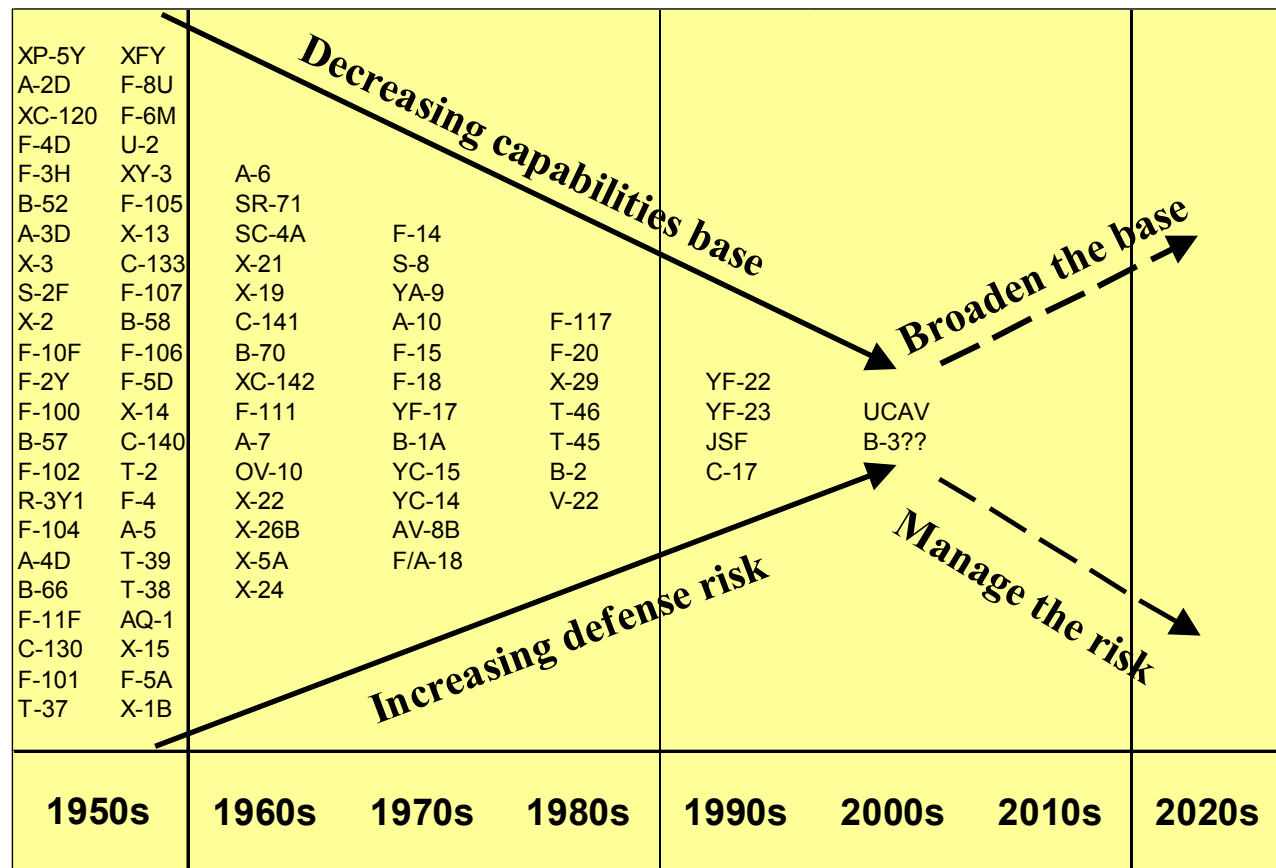
Rebalance Risk

Technical

Requirements

Financial

Schedule



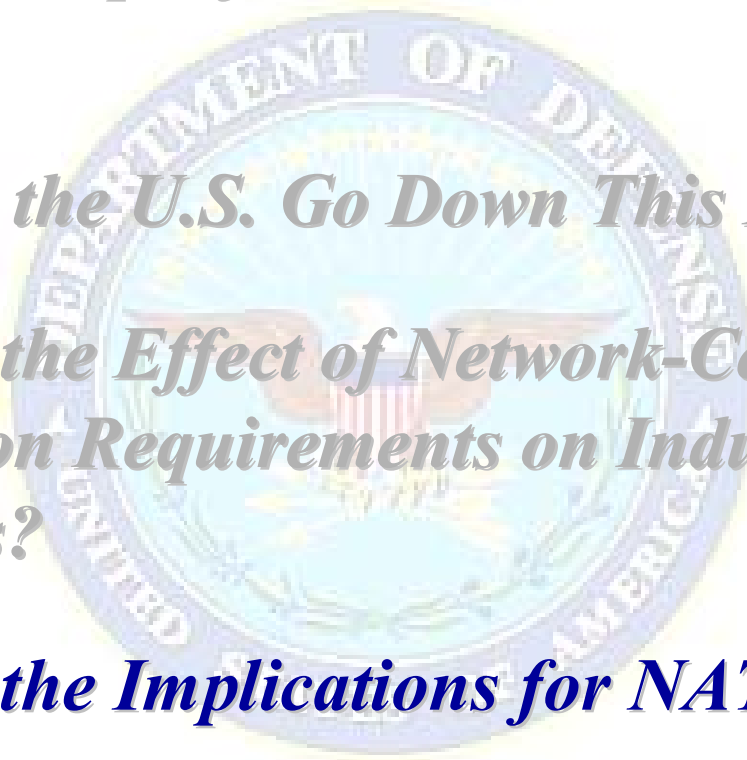
Source: Rand / Aviation Week & Space Technology

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Transforming Defense

... Strategic Choices



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"We are in a new security environment, and unless we transform this institution, we will not be able to provide the security to the American people that it's our job to do."

Secretary Rumsfeld, Fort Hood Texas, 21 August, 2002



Transforming Defense

...issues and choices



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- ✓ Spiral Transformation *vs* Discontinuous Change
 - Existing Way of War *vs* New Way of War
- ✓ Leader and Early Adopter *vs* Strategic Follower
- ✓ Layered Capabilities *vs* Niche Capabilities
 - Capital Intensive Force *vs* Labor Intensive Force
 - Diversity *vs* Divergence
- ✓ Platform-centric *vs* network-centric
 - Horizontal *vs* vertical integration
 - Technology-centric *vs* customer-centric

Without a market, there is no product